REMARKS

Claims 8 to 21 are pending in this application, with claims 1 to 7 having been withdrawn from further consideration pursuant to a telephone restriction requirement. Claims 8 and 19 are independent. Favorable reconsideration and further examination are respectfully requested.

Claims 8 to 21 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,545,574 (Chen) in view of U.S. Patent No. 6,376,349 (Tobin) and U.S. Patent No. 5,185,286 (Eguchi). As shown above, Applicants have amended the claims to define the invention with greater clarity. In view of these amendments, reconsideration and withdrawal of the art rejections are respectfully requested.

Both independent claim 8 and independent claim 19 have been amended to specify that a portion of the gate dielectric layer has a thickness that is large enough to prevent a portion of off-state leakage current that is due to quantum mechanical tunneling of electron wavefunction across the gate dielectric layer from being a dominant source of off-state leakage current. In addition to this feature, both claim 8 and 19 also specify that the gate dielectric layer comprises a material having a dielectric constant greater than about 10. By way of example only, both of these features together provide a benefit of reducing gate leakage current without having to reduce gate dielectric capacitance or increase gate dielectric area, as explained in the application on pages 11-12.

More specifically, as explained on page 11 of the application, the high dielectric constant of a high-k dielectric allows one to use a thicker gate dielectric layer than is possible with silicon dioxide, and thereby reduce gate leakage current. Furthermore, as explained on page 13 of the

application, an appropriate high-k dielectric layer thickness is chosen, taking into account the amount of leakage that can be tolerated. Accordingly, a gate dielectric layer with a combination of a dielectric constant greater than about 10 and a thickness that is large enough to prevent a portion of off-state leakage current that is due to quantum mechanical tunneling of electron wavefunction across the gate dielectric layer from being a dominant source of off-state leakage current achieves a benefit of reduced gate leakage current without requiring a reduction in gate dielectric capacitance or an increase in gate dielectric area.

The applied art is not understood to disclose or to suggest the combination of the foregoing features of the independent claims. More specifically, Chen discloses a gate dielectric layer 24 (Figs. 2 to 9) that includes "silicon dioxide, silicon nitride, or nitrided oxide" which have dielectric constants that are less than 10. Tobin discloses a gate dielectric layer 14 without specifying its thickness, much less, suggesting that it has a thickness that is large enough to prevent a portion of off-state leakage current that is due to quantum mechanical tunneling of electron wavefunction across the gate dielectric layer from being a dominant source of off-state leakage current. Eguchi, which was cited solely for its disclosure of forming contacts to the device, is not understood to remedy the deficiencies of Chen and Tobin. Since the above features of the claims are not shown in the art, Applicants submit that claims 8 and 19 are patentable.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance. Such action is requested at the Examiner's earliest convenience.